NAVAL AIR WARFARE CENTER
SPECIFICATION FOR
COATING, TGIC POLYESTER POWDER

1. SCOPE

1.1 Scope. This specification covers triglycidyl isocyanurate (TGIC) polyester coating for zinc phosphated steel and chemical conversion coated aluminum surfaces exposed to a marine environment or adverse weather.

1.2 Classification. TGIC polyester powder coatings shall be of the following types as specified (see 6.2) :

Type I - For use on steel surfaces with a zinc phosphate pretreatment.

Type II - For use on aluminum surfaces with chemical conversion coating.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standard form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

L-P-378	-Plastic, Sheet and Strip, Thin Gauge, Polyolefin.
TT-C-490	-Cleaning Methods for Ferrous Surfaces and Pretreatments for Organic Coatings.
TT-E-515	-Enamel, Alkyd, Lusterless, Quick-Drying
TT-E-516	-Enamel, Lusterless, Quick-Drying Styrenated Type
A-A-3007	-Thinner: For Phenol Formaldehyde and Medium Oil and Styrenated Alkyds Paints and Varnishes.
A-A-59107	-Toluene Technical.

MILITARY

MIL-C-5541	- Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-H-5606	- Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance.
MIL-L-19140	- Lumber and Plywood, Fire-Retardant Treated.

QUALIFIED PRODUCTS LIST
MILITARY

QPL-81706	- Products Qualified under Military Specification MIL-C-81706, Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys.

STANDARDS
FEDERAL

FED-STD-141	- Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing.
FED-STD-313	- Materials Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.
FED-STD-595	- Colors.

MILITARY

MIL-STD-2073-1	- DoD Materiel Procedures for Development and Application of Packaging Requirements.

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Documents Order Desk (Building 4D), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 366	-Standard Specification for Steel, Sheet, Carbon, Cold Rolled, Commercial Quality. (DoD Adopted)
B 117	-Standard Method of Salt Spray (Fog) Testing. (DoD Adopted)
B 209	-Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.
D 523	-Standard Test Method for Specular Gloss.
D 1729	-Standard Practice for Visual Evaluation of Color Differences of Opaque Materials. (DoD adopted)

D 1737 -Standard Test Method for Elongation of Attached Organic Coatings with Cylindrical Mandrel Apparatus. (DoD Adopted)
D 1974 -Standard Practices for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.
D 2247 -Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
D 2248 -Standard Practice for Detergent Resistance of Organic Finishes.
D 2794 -Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
D 3363 -Standard Test Method for Film Hardness by Pencil Test.
D 3652 -Standard Test Method for Thickness of Pressure Sensitive and Gummed Tapes. (DoD Adopted)
D 3924 -Standard Specification for Standard Environment for Conditioning and Testing Paint, Varnish, Lacquer, and Related Materials.
D 3951 -Standard Practice for Commercial Packaging. (DoD Adopted)
D 4060 -Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
D 4727 -Standard Specification for Corrugated and Solid Fiberboard Sheet (Container Grade) and Cut Shapes.
D 5118 -Standard Practice for Fabrication of Fiberboard Shipping Boxes.
G 26 -Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials. (DoD Adopted)

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.4), a sample shall be subjected to first article inspection (see 6.6) in accordance with 4.3.

3.2 Materials. The contractor's selection of raw material shall be as specified herein.

3.2.1 Prohibited materials. There shall be no lead compounds, chromate or cadmium pigments, or any carcinogenic or suspected carcinogenic compounds in the formulations.

3.2.2 Toxic products and formulations. The material shall have no adverse effect on the health of the personnel when used for its intended purpose following the manufacturer's recommended methods. Questions pertinent to this effect will be referred by the contracting activity to the Naval Medical Command (NAVMEDCOM) who will act as an advisor to the contracting activity.

3.2.3 Material safety data sheet (MSDS). When specified in the contract or purchase order (see 6.4), a material safety data sheet prepared in accordance with the requirements of FED-STD-313 shall be provided at the time of contract award. The MSDS shall be included with each shipment of the material covered by this specification (see 6.7).

3.2.4 Disposal requirement. Waste powder may be fused at a low temperature to form a solid inert block before disposal. Waste powder, removed coatings, and solid blocks shall be disposed of in accordance with state, Environmental Protection Agency (EPA) and any other Federal agency regulations.

3.3 Coating characteristics. The material shall be a finely ground powder consisting of a resin, curing agents, catalysts, fillers, colorants, and flow control agents. When applied to a substrate and subjected to a heating cycle, as required by the contractor, the material shall melt, fuse, and subsequently cure to form a coating which meets or exceeds all the requirements of this specification. The contractor shall specify the application procedure, health and safety information necessary to assure optimum performance.

3.3.1 Application conditions. After application of the powder coating, the coating shall be cured when applied under the conditions recommended by the contractor. The cure temperature and time duration shall not affect the material or mechanical properties of the substrate to be coated. For type II powder coatings the cure temperature shall not exceed 300° F.

3.4 Film properties. The powder coating shall be applied by established commercial powder coating methods over pretreated steel surfaces and over aluminum surfaces treated with a chemical conversion coating. Coatings shall have a total dry film thickness for interior and exterior surfaces of 3 to 5 mils. The coating shall be smooth, even, and free of runs, sags, and streaks.

3.5 Color. Color of the cured film of applied powder coatings shall be as specified in the contract or purchase order (see 6.4) in accordance with FED-STD-595 color chip (see 4.7.2). The measured color deviation from FED-STD-595 shall not exceed delta E of 1.0.

3.6 Flexibility. The cured film of applied powder coating shall show no cracking or loss of adhesion in the bend area (see 4.7.3).

3.7 Knife test. A cured film of applied powder coating shall adhere tightly and not flake, crack, or powder from the metal. The cut shall show beveled edges (see 4.7.4).

3.8 Adhesion. The cured film of applied powder coating shall show no lifting, flaking, or other signs of loss of adhesion (see 4.7.5).

3.9 Specular gloss. Initially, the 60° specular gloss of the cured film of applied powder coating (for all colors) shall have a minimum requirement of 20 and a maximum requirement of 30 (see 4.7.6).

3.10 Thermal shock resistance. The cured film of applied powder coating shall withstand 6 cycles between 74 ±2 °Celsius (165 ±4 ° Fahrenheit) and -54 ±2° Celsius (-65 ±4 ° Fahrenheit) without cracking, checking, or disbonding (see 4.7.7).

3.11 Impact resistance. The cured film of applied powder coating shall provide a coating that will have a withstand an indentation of 100 inch-pounds intrusion and 25 inch-pounds extrusion without cracking or loss of adhesion (see 4.7.8).

3.12 Abrasion resistance. Weight loss from the cured film of applied powder coating shall not exceed 50 milligrams (mg) (0.0001 pound) (see 4.7.9).

3.13 Salt spray resistance. A cured film of applied powder coating shall show undercutting of not more than 6.3 mm (0.25 inch) from the lines scored to base metal. There shall also be no blistering, wrinkling, or loss of adhesion of the coating nor any general surface corrosion or pitting (see 4.7.10).

3.14 Water immersion test. The cured film of applied powder coating shall show no wrinkling, blistering, or loss of adhesion (see 4.7.11).

3.15 Hydrocarbon immersion test. A cured film of applied powder coating shall show no softening, blistering, or rusting (see 4.7.12).

3.16 Hydraulic fluid immersion test. A cured film of applied powder coating shall show no softening, blistering or rusting (see 4.7.13).

3.17 Enamel paint compatibility. A cured film of applied powder coating shall not blister, wrinkle, or show other evidence of lifting (see 4.7.14).

3.18 Accelerated weathering. The cured film of applied powder coating shall show no cracking, color change exceeding a delta E of ±3.0, blistering, wrinkling, or loss of adhesion of the coating nor evidence of substrate corrosion after 1,000 hours exposure to accelerated weathering (see 4.7.15).

3.19 Humidity resistance. The cured film of applied powder coating shall show no corrosion, blistering, wrinkling, or loss of adhesion (see 4.7.16).

3.20 Hardness. The cured film of applied powder coating shall have a minimum scratch pencil hardness of 2H (see 4.7.17).

3.21 Shelf life. The powder coating materials shall meet the requirements of this specification for 1 year from the date of manufacture when stored unopened in the original container at a temperature not greater than 27 °C (80 °F) and at a relative humidity of not greater than 50 percent.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All powered material shall meet all requirements of sections 3 and 5. The inspections set forth in this specification shall become a part of the contractor’s overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of the manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective

material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

(a) First article inspection (see 4.3)
(b) Quality conformance inspection (see 4.4)

4.2.1 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the applicable test methods specified herein.

4.3 First article inspection. First article inspection shall consist of the tests specified in 4.7.1 through 4.7.17.

4.4 Quality conformance inspection. For purposes of quality conformance inspection, a lot shall consist of all powdered material of the same formula designation from a single uniform batch manufactured and offered for delivery at one time. Two samples of each lot of powdered material shall be forwarded to a designated Government laboratory (see 6.4) for quality conformance tests.

4.4.1 Quality conformance tests. Quality conformance tests on two samples of powdered material for individual lots shall consist of tests as specified in 4.7.1 through 4.7.6 (see 6.5).

4.5 Test procedures. Unless otherwise specified in the contract or purchase order (see 6.4), tests shall be performed on two panels of each material.

4.6 Test panels. The test panel material, the surface preparation, and test panel coating application shall be as specified in sections 4.6.1 through 4.6.3.

4.6.1 Material. Unless otherwise specified in the contract or purchase order (see 6.4), test panels for Type I powder coatings shall be prepared from sheet steel conforming to ASTM A366, cold rolled or of a chemistry identical to that of the end item the powder coating will be applied to. Test panels for Type II powder coatings shall conform to sheet aluminum conforming to ASTM B209, alloy 5086 or of a chemistry identical to the end item the powder coating will be applied to. All panels shall be, unless otherwise specified in the contract or purchase order (see 6.4), at least 100 by 150 by 3 mm (4 by 6 by 0.125 inches), except the panels for the following:

a. Panels for the flexibility test (see 4.7.3) shall be 100 by 150 by 0.8 mm (4 by 6 by 0.031 inches).

b. Panels for the impact resistance test (see 4.7.8) shall be steel panels measuring 100 by 150 by 0.63 mm (4 by 4 by 0.025 inches).

c. Panels for the abrasion resistance test (see 4.7.9) shall be either a disk 100 mm (4 inches) in diameter, or a plate 100 mm (4 inches) square with rounded corners and with a 6.3 mm (0.25 inch) hole centrally located on each panel.

4.6.2 Surface preparation. Unless otherwise specified herein, the panels shall be cleaned in solvent such as xylene and isopropanol, one to one ratio by volume), rinsed in clean solvent, and dried. Apply a zinc phosphate coating on the steel panels conforming to TT-C-490, Type I. Apply a chemical conversion coating on the aluminum panels conforming to MIL-C-5541, Class 1A and MIL-C-81706, Class 1A. Chemicals meeting these specifications can be found in QPL-81706.

4.6.3 Application methods. After surface preparation in accordance with 4.6.2, the panels shall be transferred to the powder application area without contaminating the panel surfaces. The chemical conversion coatings for the steel and/or aluminum panels must be completely dry prior to the application of the powder coating. Unless otherwise specified in the contract or purchase order (see 6.4), the powder coating shall be applied in accordance with the instructions of the powder coating supplier and equipment vendor. A dry film thickness of 3 to 5 mils is required for steel and aluminum test surfaces. Coatings for the flexibility test shall be 3 mils ± 0.5 mils thick. The cure temperature and time duration shall not affect the material or mechanical properties of the panels. For type II powder coating, the cure temperature shall not exceed 300° F.

4.7 Tests.

4.7.1 Coating. Panels shall be prepared, cleaned, and coated as specified in 4.6. The coated panels shall be examined for conformance to the requirements specified in 3.4.

4.7.2 Color. Two panels shall be prepared and coated as specified in 4.6. The color requirements specified in 3.5 shall be verified as a general color match when tested in accordance with ASTM D 1729.

4.7.3 Flexibility. Two panels, with the dimensions specified in 4.6.1 and prepared and coated as specified in 4.6, shall be bent 180 degrees over a 12.5 mm (0.5 inch) mandrel in accordance with ASTM D 1737. The panels shall be visually examined immediately to determine conformance to the requirements specified in 3.6.

4.7.4 Knife test. Perform the knife test using a flat portion of the cured panels from the flexibility test. Cut a narrow ribbon of the coating from the test panel with the standard knife while holding the blade at an angle of approximately 30 degrees to the panel. Observe for compliance with 3.7. The standard knife is a craftsman's knife with a curved blade such as is illustrated in the Stores Stock Catalog, Federal Supply Service, Item 5110-00-596-8098. This procedure shall be in accordance with FED-STD-141, Method 6304.

4.7.5 Adhesion. Two panels shall be prepared and coated as specified in 4.6. Two parallel scratches shall be made through the coating to each substrate 25mm (1 inch) apart, and not less than 50 mm (2 inches) long, using a stylus. A 25 mm (1 inch) wide strip of masking tape, in accordance with ASTM D 3652, shall be placed perpendicular to the scratches, adhesive side down. The tape shall be pressed down using two passes of a rubber-covered roller weighing 5 pounds. The tape shall be removed immediately in one abrupt motion, exerting the pull at approximately 90 degrees to each panel. The coating shall be examined for conformance to the requirements specified in 3.8.

4.7.6 Specular gloss. Two panels shall be prepared and coated as specified in 4.6. The 60 degree specular gloss of the powder coating shall be determined in accordance with ASTM D 523 for conformance to the requirements specified in 3.9.

4.7.7 Thermal shock. Two panels shall be prepared and coated as specified in 4.6. Test panels shall be placed in an oven maintained at 74 ±2 °C (165 ±4 °F) for 30 minutes, then removed and quenched in cold tap water. The samples shall then be wiped dry and immediately plunged into a suitable low temperature environment and held at -54 ±2 °C (-65 ±4 °F) for 10 minutes. After each cycle, the panels shall be inspected for conformance to 3.10. Cycling shall be continued until the panel fails or until 10 cycles have passed.

4.7.8 Impact resistance. Two steel panels 100 by 150 by 0.63 mm (4 by 6 by 0.025 inch) shall be prepared and coated as specified in 4.6. Test panels shall be impact tested in accordance with ASTM D 2794 using a weight and indenter with the following properties: weight (to strike indenter), 909 grams (2 pounds); indenter nose diameter, 15.9 mm (0.625 inch). Backing plates shall not be used. The impact resistance shall be determined for conformance to the requirements specified in 3.11.

4.7.9 Abrasion resistance. Two disks or two square plates, with the dimensions specified in 4.6.1 and prepared and coated as specified in 4.6, shall be tested using a Taber Abraser apparatus using GS-17 wheels, 1000 gram (2.2 pound) weights for 1000 cycles, in accordance with ASTM D 4060. Weight loss shall be used as the evaluation criteria rather than optical clarity. The

weight loss shall be determined immediately to three decimal places for conformance to the requirements specified in 3.12.

4.7.10 Salt spray resistance. Two panels shall be prepared, cleaned, and coated as specified in 4.6. Test panels shall be expossed in accordance with ASTM B 117. Exposure time shall be 1000 hours minimum for steel and aluminum substrates. The panels shall be examined for conformance to the requirements specified in 3.13.

4.7.11 Water immersion test. Two panels shall be prepared and coated as specified in 4.6. Half of each panel shall then be immersed in water for 24 hours. After removal from the water, each panel shall then be examined immediately for wrinkling, blistering, adhesion, and to verify conformance to 3.14.

4.7.12 Hydrocarbon immersion test. Two panels shall be prepared and coated as specified in 4.6. Half of each of the coated panels shall be immersed in toluene that meets the requirements of A-A-59107. The panels shall be examined after 3, 10, and 15, days for conformance to 3.15.

4.7.13 Hydraulic fluid immersion test. Two panels shall be prepared and coated as specified in 4.6. Half of each of the coated panels shall be immersed in hydraulic fluid in accordance with MIL-H-5606 as specified in 4.7. The panels shall be examined after 3, 10, and 30 days for conformance to 3.16.

4.7.14 Enamel paint compatibility. Two panels shall be prepared and coated as specified in 4.6. Immerse the panel to a depth of 2.5 inches in a white enamel conforming with either:

a. TT-E-515 or TT-E-516, composition G, which has been reduced with one part by volume of thinner conforming to A-A-3007, to four parts by volume of enamel; or,

b. TT-E-516, composition L, which has been reduced with one part by volume of thinner, conforming to TT-E-516, Table V, to four parts by volume of enamel.

At the end of 5 seconds, remove the panel, dry in a vertical position and examine for compliance with 3.17.

4.7.15 Accelerated weathering. Two panels shall be prepared and coated as specified in 4.6. The panels shall be subjected to accelerated weathering for 1,000 hours in accordance with ASTM G26, method 1, type BH. Panels shall be removed and examined for conformance to 3.18. (See 6.8)

4.7.16 Humidity resistance. Two panels, prepared and coated as specified in 4.6, shall be exposed in a humidity cabinet, in accordance with ASTM D2247, at 49 ±1 °C (120 ±2 °F) and 100 percent humidity. The powder coating shall be exposed for 30 days. After exposure, the panels shall be examined for conformance to 3.19.

4.7.17 Hardness. The powder coating of two panels prepared and coated as specified in 4.6, shall be subjected to the scratch hardness test in accordance with ASTM D 3363 to determine conformance to 3.20. The average of five determinations shall be recorded as the hardness.

4.8 Toxicity. To determine conformance to requirements of this specification, the manufacturer of the material shall disclose the formulation of this product to the Naval Medical Command, MEDCOM-242, Washington, D.C. 20372. The disclosure of proprietary information, which shall be held in confidence by the Naval Medical Command, shall include: the name, formula, and approximate percentage by weight and volume of each ingredient in the product; the results of any toxicological testing of the product; identification of its pyrolysis products; and any such other information as may be needed to permit an accurate appraisal of any toxicity problem associated with the handling, storage, application, use, disposal, or combustion of the material. Information submitted shall be clearly marked or identified to show it is being provided in connection with this specification .

4.9 Inspection of packaging. Sample packages and packs, and the inspection of the preservation, packing and marking for shipment, stowage, and storage shall be in accordance with the requirements of section 5.

5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition.)

5.1 General.

5.1.1 Navy fire-retardant requirements.

a. Lumber and plywood. When specified in the contract or purchase order (see 6.4), all lumber and plywood including laminated veneer material used in shipping container and pallet construction members, blocking, bracing, and reinforcing shall be

fire-retardant treated material conforming to MIL-L-19140 as follows:

Levels A and B - Type II - weather resistant.
- Category 1 - general use.

Level C - Type I - non-weather resistant.
- Category 1 - general use.

b. Fiberboard. Unless otherwise specified in the contract or purchase order (see 6.4), fiberboard used in the construction of class-domestic, non-weather resistant fiberboard, and cleated fiberboard boxes including interior packing forms shall meet the flamespread and the specific optic density requirements of ASTM D4727 and amendments thereto.

5.1.2 Unit pack quantity. Unless otherwise specified in the contract or purchase order (see 6.4), the powder coating shall be furnished in 50- to 55-pound unit packs as specified for the required level of preservation (see 5.2).

5.2 Preservation. Preservation shall be level A, C, or commercial as specified in the contract or purchase order (see 6.4).

5.2.1 Level A. Unit packs shall consist of a plastic bag with a fiberboard box overpack as follows:

a. Plastic bag. The plastic bag shall be constructed of material conforming to L-P-378, type I, class 1, with grade and finish at the contractor's option. Final bag closure shall be accomplished by twisting and securing with a self-lock type plastic tie.

b. Fiberboard box. The fiberboard box shall conform to ASTM D1974 and ASTM D5118, class weather-resistant with variety, grade, and style at the contractor's option. Box closure shall be in accordance with method V and reinforced with tape or nonmetallic stripping in accordance with the appendix to the box specification.

5.2.2 Level C. The unit pack shall be as specified for level A except that the fiberboard box shall conform to class domestic/fire-retardant (see 5.1.1) with variety grade, and style at the contractor's option. Box closure shall be in accordance with method I using pressure-sensitive adhesive tapes.

5.2.3 Commercial. Commercial preservation shall be in accordance with ASTM D 3951.

5.3 Packing. Packing shall be level A, B, C, or commercial as specified in the contract or purchase order (see 6.4).

5.3.1 Level A. Coating preserved as specified (see 5.2) shall be packed in exterior shipping containers in accordance with table VII of MIL-STD-2073-1, appendix C and herein. Unless otherwise specified in the contract or purchase order (see 6.4), container selection shall be at the contractor's option.

5.3.1.1 Caseliners and gross weight.

5.3.1.1.1 Caseliners. Unless otherwise specified in the contract or purchase order (see 6.4), level A shipping containers containing coating preserved level C or commercial shall be provided with waterproof caseliners in accordance with MIL-STD-2073-1.

5.3.1.1.2 Weight. Wood, plywood, and cleated type containers exceeding 200 pounds gross weight shall be modified by the addition of skids in accordance with MIL-STD-2073-1 and the applicable container specification or appendix thereto.

5.3.2 Commercial. Coating preserved as specified (see 5.2) shall be packed for shipment in accordance with ASTM D 3951.

5.4 Marking. In addition to any special marking required (see 6.4 and herein), interior shipping containers (unit packs), shipping containers, and palletized unit loads shall be marked including bar coding for shipment, stowage, and storage in accordance with MIL-STD-2073-1, appendix F.

5.4.1 Precautionary marking. Each unit pack (plastic bag and box), shipping container, and palletized unit load shall be marked with the following (see 3.21):

"DO NOT STORE AT TEMPERATURES ABOVE 27 °C (80 °F) AND RELATIVE HUMIDITY ABOVE 50 PERCENT"

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This specification covers a high grade, durable coating of a TGIC polyester resin type with the compounds and additives necessary to provide a gloss of 20 to 30 percent (measured at an angle of 60°). This coating will offer excellent barrier protection to the underlying substrate. It is intended to be applied on steel surfaces that have been zinc phosphate

coated and aluminum surfaces that have been treated with a chemical conversion coating. The pretreatment coatings decrease the rate of underfilm corrosion in an aggressive environment when the cured powder coating has been scratched down to the metal surface.

6.2 New component applications. Powder coatings in accordance with this specification should be applied as specified by the manufacturer's instructions or technical data sheet. Special application procedure required by new components should not conflict with the manufacturer's instructions to prevent improper application of the powder coating.

6.3 Touch-up applications. Coatings should be maintained by using a compatible two component epoxy patch compound.

6.4 Acquisition requirements. Acquisition documents must specify the following:

(a) Title, number, and date of this specification.
(b) Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
(c) Type (see 1.2).
(d) When first article is required (see 3.1).
(e) Requirement for MSDS (see 3.2.3)
(f) FED-STD-595 color chip number (see 3.5)
(g) When duplicate test is not required (see 4.5).
(h) Dimensions and material of test panels, if other than specified (see 4.6.1).
(i) Coating procedure, if other than contractor's instructions (see 4.6.3).
(j) Routine and referee testing conditions if required (see 4.7).
(k) Required Navy fire retardant requirements (see 5.1.1).
(l) Unit pack quantity, if other than specified (see 5.1.2).
(m) Level of preservation and packing required (see 5.2 and 5.3).
(n) Container selection, if other than contractor's option (see 5.3.1).
(o) Caseliners, if not required (see 5.3.1.1.1).
(p) Special marking required (see 5.4).

6.5 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DIDs) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested and to ensure that the DIDs are tailored to reflect the requirements of the specific acquisition. To ensure correct

contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DoD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID Number	DID Title	Suggested Tailoring
3.2, appendix	DI-MISC-80653	Test reports	--------
4.4.1	DI-MISC-80678	Certification/ data report	--------

The above DIDs were those cleared as of the date of this specification. The current issue of DoD 5010.12L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD 1423.

6.6 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerers whether first article sample inspection is required (see 3.1), and the number of items to be tested as specified in 4.3. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.7 Material safety data sheet (MSDS). Contracting officers must identify those activities requiring copies of MSDS's. Additional required Government information is contained in FED-STD-313. In order to obtain the MSDS, FAR clause 52.223-3 must be in the contract.

6.8 Subject term (key word) listing.
Triglycidyl isocyanurate polyester
TGIC polyester
Powder coatings
Coatings
Barrier corrosion protection

Preparing activity:
Naval Air Warfare Center
Weapons Division
Point Mugu, CA